PATENT SPECIFICATION

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500,608

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Complete Specification Accepted: Feb. 13, 1939.

COMPLETE SPECIFICATION

Improvements in or relating to Liquid Containers such as Kegs or Barrels

We, FIRESTONE TYRE & RUBBER COMPANY, LIMITED, a British Corporation, of Great West Road, Brentford, Middlesex, England, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to jacketed containers such as kegs or barrels for beverages or other liquids, and more especially it relates to portable jacketed containers arranged for the circulation of a fluid medium through the jacket thereof.

The chief objects of the invention are to provide simple, efficient, and economical means for controlling the temperature of the contents of a barrel or keg; to avoid the use of metal coils either for the contents of the barrel or for the cooling medium, to obviate the expense and delay of coil cleaning; to obviate the use of ice for cooling beverages; and to avoid waste of the beverage such as occurs when it is cooled in metal coils.

In accordance with the present invention there is provided a transportable liquid container such as a barrel, comprising an outer shell and an inner liner spaced apart so as to form a closed chamber therebetween, all regions of said chamber being in communication with one another, and including means for admitting fluid, e.g. cooling fluid, to said chamber in one region thereof, and means for venting the fluid from said chamber at a region remote from said first mentioned region.

The invention includes also a transportable liquid container such as a barrel, comprising an inner metal liner and an outer shell enclosing said liner in spaced relation thereto to form a closed chamber therebetween, all regions of said chamber being in communication with one another, and said shell being locally recessed adjacent its opposite ends, and having a port for the passage of fluid, e.g. cooling fluid, located in said recess, each port comprising a socket for connection with a fluid-conducting pipe.

In order that this invention may be clearly understood and readily carried into effect the same will now be described more fully with reference to the accompanying drawings illustrating the way of example two embodiments of the invention, and in which:

Figure 1 is a vertical section through a jacketed container embodying the invention, in one form;

Figure 2 is detailed sectional view on the line 2-2 of Figure 1;

Figure 3 is a detail sectional view on the line 3-3 of Figure 1; and

Figure 4 is a fragmentary vertical section through a jacketed container constituting another embodiment of the invention.

Referring to Figure 1 of the drawings, the improved container is shown in the form of a metal barrel or keg of which 10 is a liner composed of non-corrodible metal such as stainless steel, and 11 is an outer metal shell or casing of galvanized sheet iron enclosing said shell and disposed in spaced relation thereto except in local regions. The liner 10 is a unitary hollow structure having a bung opening in the medial region of its girth and having a tap opening in its top. The bung opening is of a stainless steel sleeve 12, and the tap opening consists of a stainless steel sleeve 13. The bottom of the liner is formed with a sump 14 in vertical alignment with the tap opening in the top of the liner.

The outer shell or casing 11 initially consists of two halves or sections 11a and 11b that are welded to each other in an equatorial seam 16 after being assembled about the liner 10. The head or end of each casing section is inset so as to provide a double-walled chine 17 at each end of the barrel. For supporting the liner 10 in spaced relation to the casing wall, a pair of annular girth rings 18, 18 of channel section are positioned between the liner 10 and casing 11, said rings being disposed on opposite sides of the equatorial seam 16. Said girth rings are provided with a plurality of apertures 19, 19 that permit the passage of fluid from one side of each ring to the other. The outer wall of the casing 11, adjacent each chine 17, is formed with a circumferential series

of spaced apart indentations 20, 20 that constitute abutments or seats for the liner 10, the latter engaging said abutments with the rounded corners formed by the juncture of its side-wall and its respective heads or ends. Mounted between said rounded corners of the liner and the abutments 20 are spaced apart strips 21, 21 of cushioning material, such as asbestos composition, said strips serving to cushion the liner 10 against jars and jolts incidental to the handling of the barrel, and also serving as thermal insulation to prevent heat transfer from the casing to the liner. Because the strips 21 are spaced apart from each other, fluid readily may pass between them. The heads or ends of casing 11 are spaced from the heads or ends of the liner 10, as shown.

The head of the upper casing member 11a is formed with an aperture 24 through which the tap sleeve 13 extends, there being an annular collar 25, that is of inverted U-shape in section, positioned about the sleeve 13 and having its inner and outer margins welded to the liner and to the casing respectively, to close said aperture 24. A sput or collar 26 is welded onto the sleeve 13 and overlies the inner peripheral margin of the collar 25. On the side of the barrel the casing 11 fits snugly around the bung sleeve 12 and is welded thereto. The arrangement is such as to provide a fluid tight chamber 27 on all sides of the liner 10, the various regions of said chamber being in communication with each other so as to permit the circulation of cooling fluid therethrough.

For admitting fluid to the chamber 27, an inlet port is provided in the inner peripheral wall of bottom chine 17 of the barrel, said inlet port comprising an internally threaded socket member 30 that is welded into chine-wall. Said member 30 is adapted to be coupled to a fluid-conducting pipe 31 that has communication with a remote source of cooling fluid (not shown). The chamber 27 is provided with an outlet portion that is located in the upper chine of the barrel at a point diametrically opposite the aforesaid inlet port. Said outlet port comprises a socket member 33 similar to socket member 30, said member 33 being connectable to a vent pipe 34 that conveys fluid from the barrel back to the source of cooling fluid, for re-cooling.

The liquid contents of the barrel is withdrawn therefrom by means of the usual tapping device that is mounted in the tapping sleeve 13, as shown in broken lines in Figure 1, said device comprising a tapping tube or draught rod 36 that extends downwardly almost to the bottom of sump 14, and an inlet port 37 by which air under pressure is forced into the barrel.

The position of the inlet port and outlet port of the chamber 27 at opposite ends of the barrel and at opposite sides thereof assures such circulation of fluid within the said chamber as to provide efficient heat transfer so that the liquid content of the barrel is adequately cooled. Because the inlet port is at the bottom of the barrel, the contents of the barrel will be coldest at the bottom thereof, which is a desirable feature for the reason that the contents of the barrel is withdrawn from the bottom thereof. Because the inlet and outlet ports of the chamber 27 are located on the inner periphery of the chines 17, the sockets 30, 33 are protected and will not be damaged by impacts sustained by the barrel during the handling thereof. The improved construction shown involves no extensive or expensive departure from prior metal barrel structures, and it achieves the other advantages set out in the foregoing statement of objects.

The embodiment of the invention shown in Figure 4 is similar in all respects to the embodiment shown in Figure 1 except for the location of the inlet and outlet ports to the chamber 27a. The inlet port is located in a local recessed region 37 formed in the lower part of the barrel casing, above the lower chine 17a thereof. Said inlet port comprises an internally threaded socket 38 for receiving the coupling member 39 of a fluid conducting pipe 40 that conveys cooling fluid to the barrel. In like manner the upper portion of the barrel casing is formed with an outlet port located in a locally recessed region 41 and comprising a socket 42 for receiving the coupling member 43 of a vent pipe 44. The inlet port and outlet port are shown on the same side of the barrel, but obviously one of them could be on the opposite side of the barrel.

The modified embodiment of the invention functions almost as well as the preferred embodiment, but the exposed position of the sockets of the inlet and outlet ports makes them somewhat more susceptible to injury during transportation of the barrel.

Other modifications may be resorted to without departing from the scope of the appended claims.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A transportable liquid container such as a barrel, comprising an outer shell and an inner liner spaced apart so-

as to form a closed chamber therebetween, all regions of said chamber being in communication with one another, and including means for admitting fluid, e.g. cooling fluid, to said chamber in one region thereof, and means for venting the fluid from said chamber at a region remote from said first mentioned region.

2. A transportable liquid container such as a barrel, comprising an inner metal liner and an outer shell enclosing said liner in spaced relation thereto to form a closed chamber therebetween, all regions of said chamber being in communication with one another, and said shell being locally recessed adjacent its opposite ends, and having a port for the passage of fluid, e.g. cooling fluid, located in each recess, each port comprising a socket for connection with a fluid-conducting pipe.

3. A container as claimed in claim 1 or 2, including means for supporting the liner within the shell at local spaced apart regions.

4. A container as claimed in claim 3, including girth rings between the liner and the shell, said girth rings being perforate to permit the passage of fluid therethrough.

5. A container as claimed in any of claims 2 to 4, in which the shell is formed with hollow chines at opposite ends of the container, the inlet and outlet ports for the fluid being arranged in the respective chines.

6. A container as claimed in claim 5, in which the ports are located in the inner peripheral wall of each chine.

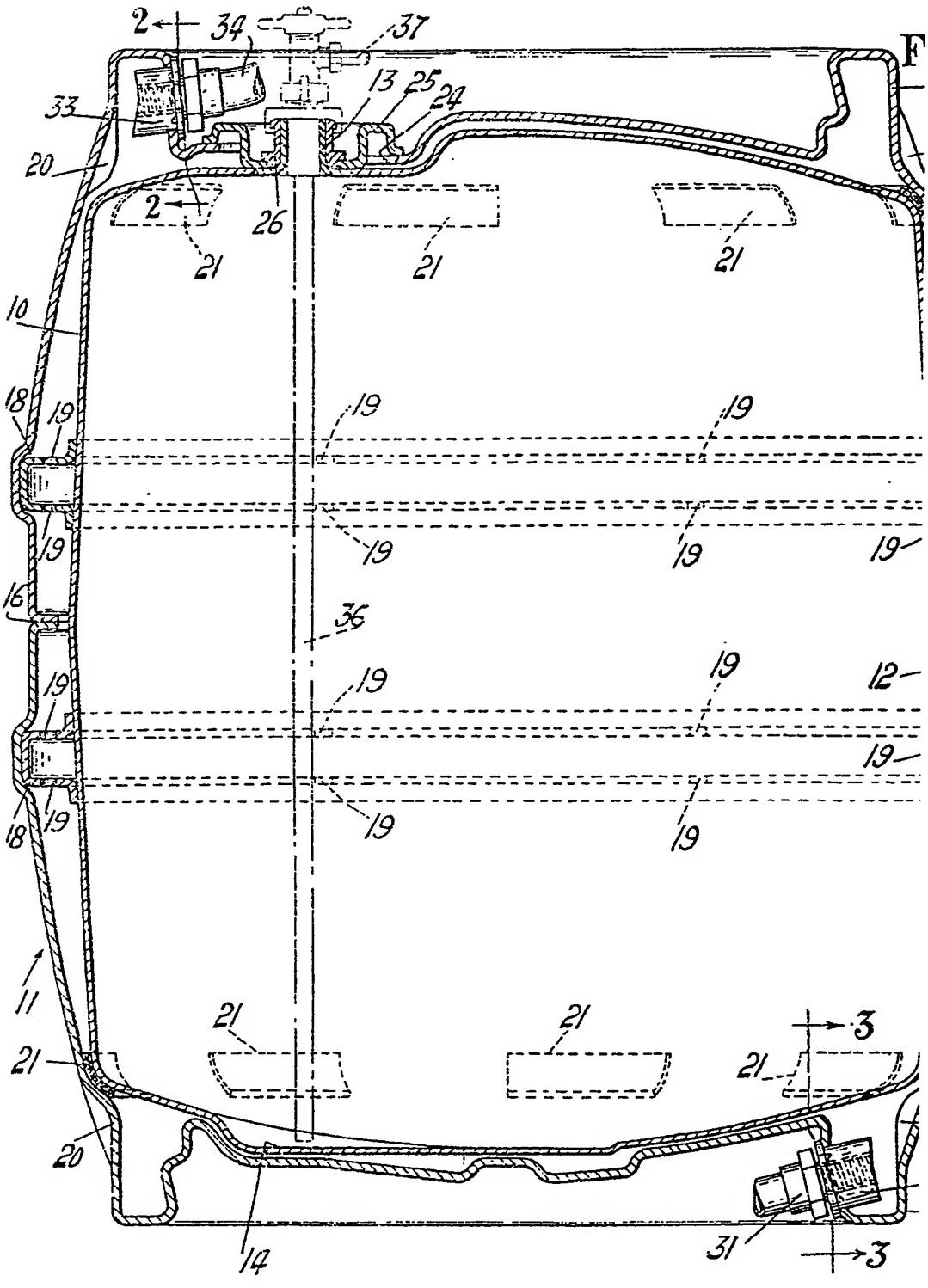
7. A container as claimed in claim 5 or 6, in which said ports are disposed at diametrically opposite points in the container.

8. The improved barrel or like container substantially as hereinbefore described with reference to the two embodiments illustrated in the accompanying drawings, for the purpose specified.

Dated this 26th day of March, 1938.

WILLIAM E. DUCK,
Director,
TH. G. MELLORS,
Director,
A. W. EDLIN,
Secretary.
For and on behalf of the Firestone Tyre and Rubber Company Limited.

Leamington Spa: Printed for His Majesty's Stationery Office, by the Courier Press.—1939.



[This Drawing is a reproduction of the Original on a reduced scale.]

FIG. 1.

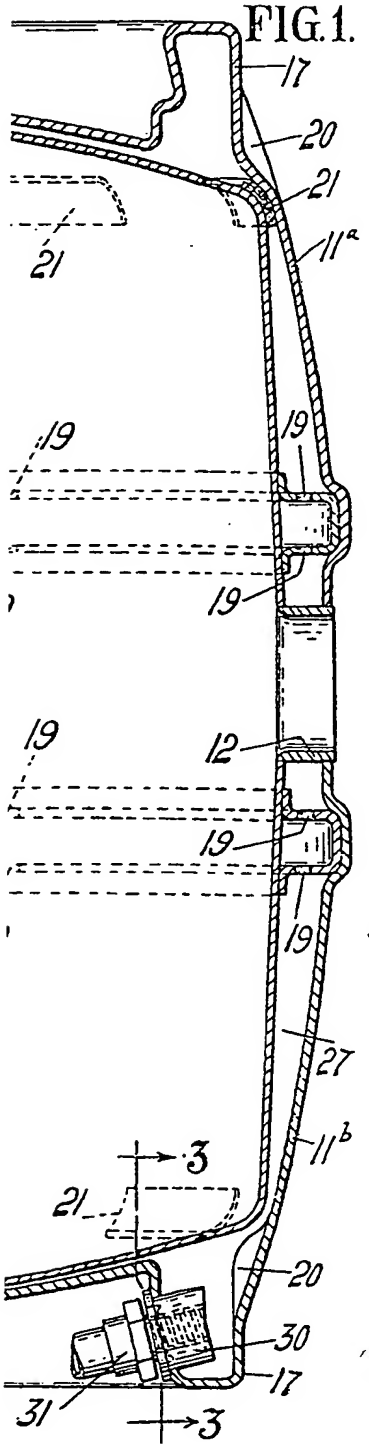


FIG. 2.

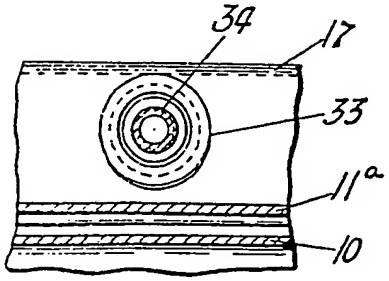


FIG. 3.

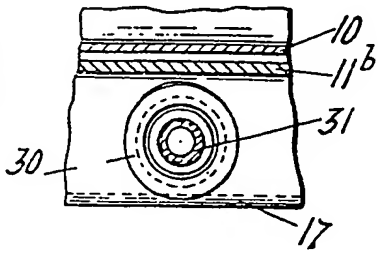


FIG. 4.

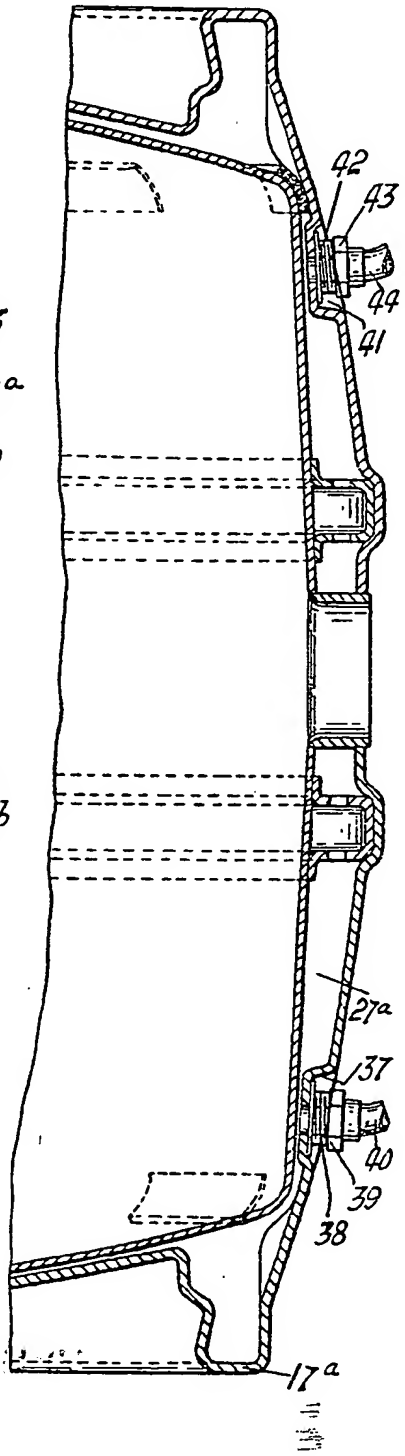


FIG. 1.

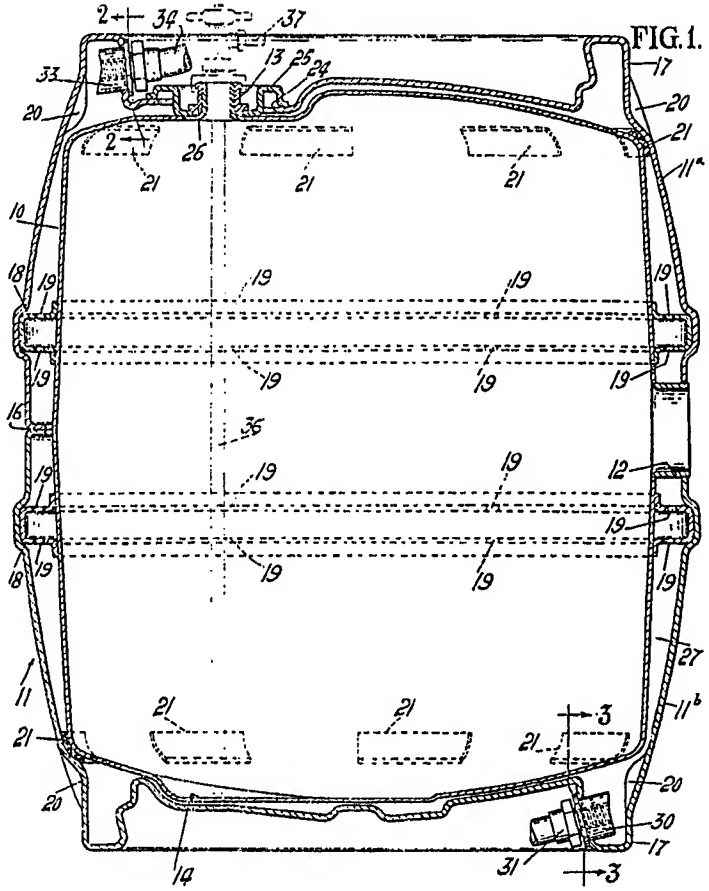


FIG. 2.

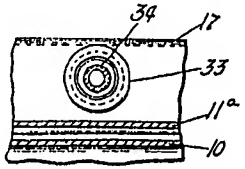


FIG. 3.

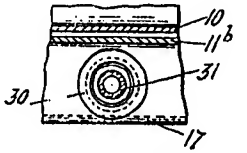
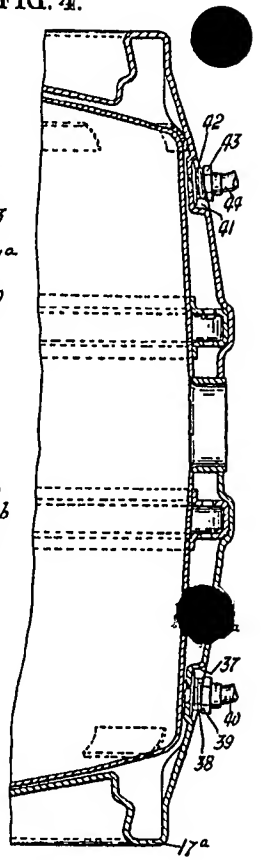


FIG. 4.



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